

Mongolian Carbon Cycle Gas Measurements

B. Borkhuu

Institute of Meteorology and Hydrology, Khudaldaany gudamj-5, Ulaanbaatar-46, Mongolia

The Mongolia Institute of Meteorology and Hydrology has cooperated with CMDL since 1992 to fill paired glass flasks with ambient air on a weekly basis at a site on the periphery of the Gobi Desert. The sampling is handled by a school teacher (now retired but still conducting the sampling) near the village of Ulaan Uul (44°N, 111°E) close to the Chinese border in southeast Mongolia. On a monthly basis the sample taker makes a 12-hour train trip to Ulaan Baatar to deliver the filled flasks to the institute from where they are then shipped to Boulder via the U.S. Embassy. The data from the Ulaan Uul measurements are utilized to monitor trends in a range of carbon cycle and other long-life atmospheric gases collected in this sparsely vegetated and largely uninhabited area. The winds in this region have a large component from the west and an average fetch of 1500 km over the Gobi Desert. The carbon dioxide concentration data from the Ulaan Uul measurements are presented in Figure 1 along with data from other sites to produce a display colloquially known as the “global CO₂ carpet.” In March 2004 a program to conduct monthly airborne flask profiles upwind of Ulaan Baatar was established using a Antonov-2 aircraft flying to 4.5-km altitude. The data from this program will be used to put the surface measurements into perspective and is expected to operate for 2 years.

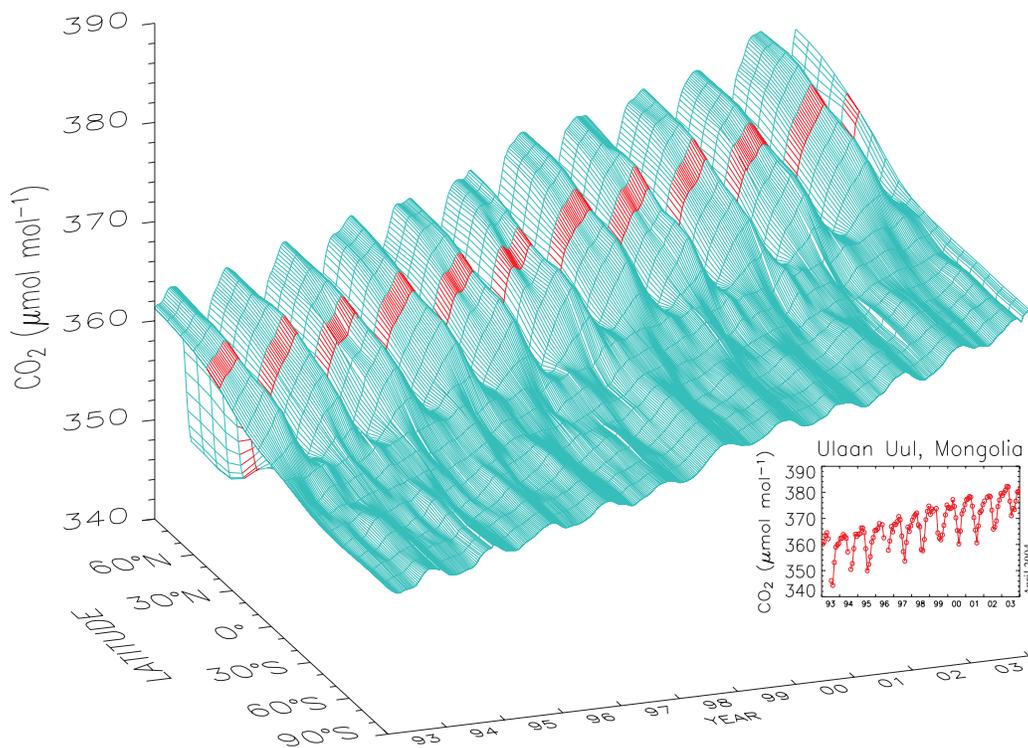


Figure1. Three dimensional presentation of the annual global carbon cycle highlighting (in red) the data from Ulaan Uul, Mongolia.